PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference WO 21.1185	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. PCT/EP2004/012189	International filing date *(day/month/year)* 26.10.2004	Priority date *(day/month/year)* 27.10.2003
International Patent Classification (IPC) or national classification and IPC C04B28/04		
Applicant SERVICES PETROLIERS SCHLUMBERGER		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☐ *sent to the applicant and to the International Bureau)* a total of sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
25.05.2005	22.02.2006
Name and mailing address of the international preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Burtan, M-M Telephone No. +31 70 340-8972

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2004/012189

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages	
1-10	as originally filed
Claims, Numbers	
1-7	as originally filed
Drawings, Sheets	
2/12-12/12	as originally filed
1/1	received on 27.10.2005 with letter of 20.10.2005

   ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-7
	No:	Claims	-
Inventive step (IS)	Yes:	Claims	1-7
	No:	Claims	-
Industrial applicability (IA)	Yes:	Claims	1-7
	No:	Claims	-

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

1. Reference is made to the following document:

   D1: WO 01/70646 A (SOFITECH N.V; SCHLUMBERGER CANADA LIMITED; COMPAGNIE DES SERVICES DOWE) 27 September 2001

2. Document D1 is regarded as being the closest prior art to the subject-matter of claim 1 and discloses (the references in parentheses applying to this document):

   a. a cementing composition for an oil well or the like, based on Portland cement, silica and alumina, characterized that the mineralogical composition of the cement matrix is included in the Si-Ca-Al triangle in one of the margarite - hauyne - [epidote/pumpellyite], hauyne - prehnite - [epidote/pumpellyite] and hauyne - prehnite - pectolite triangles (claim 1);

   b. a composition according to claim 1 (of D1), in which the mineralogical composition is within the Si-Ca-Al triangle approximately in the zone delimited by silica between 35% and 50%, aluminium between 20% and 38% and calcium between 25% and 35% (claim 2);

   c. compositions of the invention comprising 30% to 80% of micro-alumina and 75% to 85% of silica in the form of a mixture of silica with a grain size close to the grain size of a Portland cement (average particle size close to 20 µm for silica and 14 µm for cement) and micro-silica (average particle size close to 1.2 µm); silica and alumina are also present in the form of silica/alumina microspheres having a diameter of about 100 µm (page 6, lines 17 - 24).

3. The subject-matter of claim 1 differs from this known composition in that (a) the selected composition sub-ranges are narrow compared to the known ranges; (b) the selected composition sub-ranges are sufficiently far removed from the specific examples 1, 2, 3 and 7 disclosed in D1 and from the endpoints of the known ranges; and (c) the selected range is not arbitrarily selected from the prior art, but rather a purposive selection which brings forward a new technical teaching. Since the criteria for selection inventions (Guidelines, C-IV, 7.7(ii))

are complied with, the subject-matter of claim 1 is regarded as new (Article 33(2) PCT).

4. The problem to be solved by the present invention may be regarded as the provision of high-temperature resistant cement articles. The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons: the mineral composition of the starting cementitious slurry promotes the formation of anorthite above 250 °C. D1 does not hint towards cement compositions in the presently claimed phase triangles and the phase stability of said compositions at high temperatures.

5. Claim 2 - 7 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.